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Title: Reference values for the 6-minute walk test in healthy children

Dr. Silvia 3959 Ulrich ulris@bluewin.ch MD [1], Dr. Florian 3960 Hildenbrand florian.hildenbrand@usz.ch MD [1], Ms. Ursula 3961 Treder ursula.treder@usz.ch [1], Dr. Manuel 3962 Fischler manuel.fischler@waid.zuerich.ch MD [2], Prof. Dr Rudolf 3963 Speich rudolf.speich@usz.ch MD [1] and Dr. Margrit 3964 Fastnacht margrit.fasnacht@ksw.ch MD [3]. [1] Heart-Vessel-Thorax, Respiratory Clinic, University Hospital, Zurich, Switzerland ; [2] Internal Medicine, City Hospital Waid, Zurich, Switzerland and [3] Pediatric Cardiology, Childrens Hospital, Zurich, Switzerland .

Body: Background: The 6 minute walk test (6MWT) is a simple and reliable tool to assess exercise capacity in various diseases. The aim of this study was to establish reference values for the 6MWT in healthy children and adolescents in middle Europe and to investigate the impact of age, anthropometrics, heart rate, blood pressure and reported physical activity on the distance walked. Methods: Age- and sex-stratified children and adolescents between 5-17 years had short questionnaire assessments about their health state and physical activities. Thereafter anthropometrics and vitals were measured, a 6MWT was performed according to guidelines and exercise vitals were reassessed. Results: Age-adjusted 6MWT distance from 496 children (252 girls) was obtained. Age, height, weight and the exercise heart rate all predicted the distance walked according to different regression models: age was the best single predictor and mostly influenced walk distance in younger age, anthropometrics were more important in girls and adolescents. Exercise heart rate was an important distance predictor in addition to age and outreached anthropometrics in the majority of subgroups assessed. Conclusion: Performing the 6MWT is feasible and practical in children and adolescents. The 6MWD depends mainly on age, however, exercise heart rate, height and weight significantly add information and should be taken into account mainly in adolescents. Reference equations allow to predict 6MWT distance and may help to better assess and compare outcomes in young patients with cardiovascular diseases.